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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/681,618
Filing Date	10/08/2003
First Named Inventor	Williams et al.
Art Unit	2187
Examiner Name	K. N. Mclean Mayo
Attorney Docket Number	27252-14
Total Number of Pages in This Submission	32

ENCLOSURES *(Check all that apply)*

- ☑ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
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- ☐ Status Letter
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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	McDonald Hopkins Co., LPA		
Signature			
Printed name	Petar Kraguljac		
Date	02/19/2007	Reg. No.	38,520

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	Doreen Zablinski		
Typed or printed name	Doreen M. Zablinski	Date	02/19/2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Signature			
Printed name	Petar Kraguljac		
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Signature			
Typed or printed name	Doreen M. Zabinski	Date	02/19/2007

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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 500.00

Complete if Known	
Application Number	10/681,618
Filing Date	10/08/2003
First Named Inventor	Williams et al.
Examiner Name	K. N. Mclean Mayo
Art Unit	2187
Attorney Docket No.	27252-14

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): ______

☑ Deposit Account Deposit Account Number: 150635 Deposit Account Name: ______

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
Application Type	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims ______ - 20 or HP = Extra Claims ______ x Fee ($) ______ = Fee Paid ($) ______
HP = highest number of total claims paid for, if greater than 20.

Indep. Claims ______ - 3 or HP = Extra Claims ______ x Fee ($) ______ = Fee Paid ($) ______
HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims
Fee ($) ______ Fee Paid ($) ______

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets ______ - 100 = Extra Sheets ______ / 50 = Number of each additional 50 or fraction thereof ______ (round up to a whole number) x Fee ($) ______ = Fee Paid ($) ______

4. OTHER FEE(S) Fees Paid ($)

Non-English Specification, $130 fee (no small entity discount) ______

Other (e.g., late filing surcharge): Fee for Appeal Brief 500.00

SUBMITTED BY

Signature	Peter Kragulj	Registration No. (Attorney/Agent) 38,520	Telephone (216) 348-5843
Name (Print/Type)	Petar Kraguljac		Date 02/19/2007

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
Williams et al.

Serial No.: 10/681,618

Filed: October 8, 2003

For: ACCESS CONTROLLER FOR STORAGE DEVICES

Date of Final Office Action:
October 6, 2006

Notice of Appeal Filed:
December 18, 2006

Examiner: K. N. Mclean Mayo

Art Unit: 2187

Attorney Docket No.:
27252-14

February 19, 2007

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is timely provided to support the Notice of Appeal filed December 18, 2006.

CERTIFICATE OF FACSIMILE

Date of Deposit: February 19, 2007

I hereby certify that these papers are being transmitted to The United States Patent and Trademark Office facsimile number (571) 273-8300 on February 19, 2007.

Doreen Zabinski

OID-2003-091-01

02/21/2007 MBELETE1 00000024 150635 10681618
01 FC:1402 500.00 DA

1. Real Party in Interest:

The real party in interest is Oracle International Corporation, a California Corporation with a place of business at 500 Oracle Parkway, Redwood Shores, California, 94065.

2. Related Appeals and Interferences

There are no other prior and/or pending appeals, interferences, or judicial proceedings that are related to, directly affect, or that will be directly affected by or have a bearing on the Board's decision.

3. Status of Claims

Claims 1-21 and 23-37 are pending.
Claims 1-21 and 23-37 stand rejected.
Claim 22 was cancelled.
The rejections of claims 1-21 and 23-37 are appealed.

4. Status of Amendments

No Amendments were filed subsequent to the Final Office Action.

5. Summary of Claimed Subject Matter

Independent Claim 1

Claim 1 recites a system for a storage device comprising an access controller (specification, page 6, lines 15-16, [0025], Figure 1, controller 120). The access controller is configured to control access requests to a storage device by metering access to data within a first predefined region within the storage device and by allowing unmetered access to data within a second predefined region within the storage device (specification, page 6, lines 16-24; see Figure 1, hot region 105 and cold region 110).

Independent Claim 13

Claim 13 recites a method comprising receiving access requests to a storage device (Figure 6, block 605; specification page 12, lines 4-7). Claim 13 further recites increasing response time for access requests to a first predefined region within the storage device by metering access requests to a second predefined region within the storage device (Figure 6, block 610; specification page 12, lines 7-9).

Dependent Claim 17

Claim 17 depends from claim 13 and recites defining a plurality of regions within the storage device (specification page 11, lines 16-20; Figure 5, block 505), and assigning a metering threshold for selected regions of the plurality of regions (specification page 11, lines 21-25; Figure 5, block 510).

Independent Claim 20

Claim 20 recites a method comprising receiving I/O requests directed to a storage device (Figure 7, block 705, specification page 12, line 19) and determining a priority level of each of the I/O requests (Figure 7, block 710, specification page 12, lines 20-21). Claim 20 further recites allowing I/O requests having a first priority level to be processed (Figure 7, block 715, specification page 12, lines 29-30) and limiting I/O requests having a second priority level (Figure 7, block 720, specification page 12, line 30 to page 13, line 2). Claim 13 further recites that the priority level of an I/O request is determined based on a predefined location of data within the storage device associated with the I/O request (specification page 13, lines 8-11).

Independent Claim 25

Claim 25 recites a computer-readable medium storing processor executable instructions operable to perform a method (specification, page 2, lines 21-22). The method includes processing access requests to a storage device (specification page 12, lines 4-7) and metering access requests to a first predefined region within the storage device to maintain response time for access requests to a second predefined region within the storage device (specification page 12, lines 7-12).

Independent Claim 35

Claim 35 recites database system configured to process access requests to a storage device (specification page 9, lines 19-25, Figure 4, system 400). The system comprising allocation logic configured to define a plurality of regions within the storage device based on information received from a user (specification page 9, line 30 to page 10, line 3, Figure 4, allocation logic 420). Claim 35 also recites a threshold logic configured to assign a metering threshold to one or more selected regions of the plurality of regions (specification page 10, lines 9-15, Figure 4, threshold logic 425). The system also includes an access controller configured to process access requests to the storage device, the access controller including logic configured to meter access requests to a selected region of the plurality of regions once a metering threshold for the selected region is met (specification page9, lines 26-29 and page 10, lines 12-15; Figure 4, access controller 415).

6. Grounds of Rejection to be Reviewed on Appeal

I. Whether Claims 25-33 are unpatentable under 35 U.S.C. §101 as being directed to non-statutory subject matter.

II. Whether Claims 1-2, 4-9, 13, 17-18, 20, 23-26, 29, 31, 33-37 are unpatentable under 35 U.S.C. §103(a) as being obvious over Holmes (U.S. Patent Number 6,490,635) in view of Li et al. (U.S. Patent Number: 6,256,705).

7. Argument

I. Whether Claims 25-33 are unpatentable under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Claims 25-33 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Independent Claim 25 recites "[a] computer-readable medium storing processor executable instructions operable to perform a method." This is a standard Beauregard claim that has been ruled to be statutory subject matter. *In re Beauregard, 35 USPQ2d 1383 (Fed. Cir. 1995).* The Office Action notes that "[t]he specification indicates that the computer readable medium may be implemented as a transmission media, which can take the form of electromagnetic radiation, carrier wave/pulse and signals used to propagate instructions or other software over a network." (Final Office Action, page 2). The Office Action states "[t]hese forms of media are not statutory subject matter." (Office Action, page 2).

The rejection is based on interpreting the claimed "computer-readable medium storing processor executable instructions" to be limited to a specific example from a number of embodiments listed in paragraph [0014] of the specification. The definition of computer-readable medium is one that is well understood by one of ordinary skill in the computer arts. Applicant points out that the selected embodiments used to form the rejection (e.g. carrier wave and signals) are not expressly recited in the claims. As such, the Examiner is importing limitations from the specification into the claims and is improper based on MPEP 2111.01(II).

> MPEP 2111.01(II) states that is improper to import claim limitations from the specification:
>
> "Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment." *Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875, 69 USPQ2d 1865, 1868 (Fed. Cir. 2004). [Emphasis added]

Claim 1 recites "computer-readable medium storing processor executable instructions." Besides being a per se statutory Beauregard claim, the ordinary meaning of this claim type is broader than the particular embodiments used in forming the rejection. Thus, the rejection is reading a particular embodiment appearing in the written description into the claim when the claim language is broader than the embodiment. This is prohibited by MPEP 2111.01(II) and the rejection is improper and cannot stand.

Lastly, in the "Response to Arguments" section of the Final Office Action, the §101 rejection is elaborated on page 10. In paragraph 2, line 1, the Examiner states,

> "...claim 25 recites functional descriptive material, a program/instructions, which is statutory when the material is recorded on some computer readable medium." [Emphasis added]

Since claim 25 expressly recites "computer-readable medium storing processor executable instructions," the instructions are stored and thus recorded on a computer readable medium. Therefore, the claim is statutory based on the Examiner's statement and the §101 analysis concludes itself. However, Examiner's rationale continues in the next sentence in paragraph 2 of page 10 with, "In this case, the specification provides..." Now the rationale turns to incorporating limitations from the specification into the claims, which as explained above, is not permitted by MPEP 2111.01(II).

The legal authority used by the rejection appears to come from MPEP 2106.01 second paragraph, although this section is not specifically cited. The Office Action on page 10 and MPEP 2106.01, second paragraph, both recite, "Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se." Appellant again repeats that claim 25 recites a computer readable medium storing processor executable instructions. Therefore, claim 25 does not claim descriptive material per se and thus no valid basis for holding these claims nonstatutory has been presented. The rejection must be reversed.

Looking further to the rejection on page 10 paragraph 2 of the Final Office Action, only a single argument is presented for holding the claims nonstatutory. The argument is: "Programs/instructions are not recorded on carrier waves and thus a carrier wave medium does not allow the function material to become structurally and functionally interrelated to the medium." (Final Office Action, page 10, lines 11-12). This argument is contrary to the examples provided in MPEP 2106.01. First, the argument concludes that "programs/instructions are not recorded on carrier waves." MPEP contradicts this conclusion since the MPEP states "When nonfunctional descriptive material is recorded on ... an electromagnetic carrier signal..." (MPEP 2106.01, paragraph 3, lines 1-2) (emphasis added). Thus if nonfunctional descriptive material can be recorded on a carrier signal, then the claimed instructions (which the Examiner states are functional descriptive material on page 10, line 7) can certainly be recorded on carrier signals. Of course, it is well known scientific fact that carrier signals are configured to represent computer instructions and thus the instructions are recorded on the signals. Furthermore, the above section from MPEP 2101.06, paragraph 3, deals with "nonfunctional descriptive material" and thus does not apply to the present claims. The Examiner has stated that claim 25 recites "functional descriptive material" on page 10, line 7 of the Office Action.

Second, the argument above misquotes the MPEP. MPEP 2106.01, Section I, paragraph 2, states:

> "In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035."

Appellant repeats that claim 25 recites "computer-readable medium storing processor executable instructions" and MPEP 2106.01, Section I, paragraph 2 explicitly states that this type of claim is statutory. For the numerous reasons explained, the §101 rejection is without merit and claims 25-33 define statutory subject matter. The rejection should be reversed.

II. Whether Claims 1-2, 4-9, 13, 17-18, 20, 23-26, 29, 31, 33-37 are unpatentable under 35 U.S.C. §103(a) as being obvious over Holmes (U.S. Patent Number 6,490,635) in view of Li et al. (U.S. Patent Number: 6,256,705).

This rejection involves all of the independent claims, namely, claims 1, 13, 20, 25, and 35. Appellant believes that independent claims 1, 13, and 25 have similar subject matter and scope except for their form. Claim 1 is a system claim, claim 13 a method claim, and claim 25 a computer-readable medium claim. Thus, these claim sets can be grouped and will be argued based on claim 1, which is presented as a representative claim.

Independent Claim 1

Claim 1 recites an access controller configured to control access requests to a storage device by metering access to data within a first predefined region within the storage device and by allowing unmetered access to data within a second predefined region within the storage device. Holmes fails to teach or suggest the features for which it is relied upon and furthermore the combination of Holmes and Li still fails to teach or suggest each and every feature of claim 1. The rejection should be reversed and thus claim 1 patentably distinguishes over the references.

Holmes is directed to a disk drive controller that provides conflict detection for queued disk commands and in particular to a method for restricting command reordering to prevent a conflict from producing erroneous data (Holmes, Abstract, lines 7-9). The Office Action does not rely on the invention of Holmes, but rather on the Background section that describes command reordering in general. The Office Action on page 3 relies on Holmes, Background, column 1, lines 49-62, which reads:

> "Command reordering is a technique used with command queuing to mitigate the effects of seek time and rotational latency, the slowest aspects of disk drive transfers. If the command order can be changed so that commands accessing data in areas closer to the head are given greater priority, then the performance of the drive improves. For example, if a first command received from the host requests data from an inner track, a second command requests data from an outer track and a third command requests data, also from an inner track, the head has to travel from the inner tracks to the outer tracks, and then back to the inner tracks to execute the commands in chronological order. Command reordering would efficiently execute the first and third commands sequentially." (Holmes, column 1, lines 49-62, emphasis added).

Thus, with command reordering as described in Holmes, a disk command that will cause the least amount of motion of the head relative to the previous disk command will be given priority and accesses will be re-ordered to reflect this priority. The reordering is not influenced by any particular region of the disk being accessed. Rather, decisions are based on the location of the read/write head, and the head location is based on a previous disk command. Thus, the disk region being accessed is irrelevant to the reordering decision.

Accordingly, the Background of Holmes fails to teach a controller that meters access to data within any region let alone to a first predefined region as recited in claim 1 and fails to teach allowing unmetered access to data within a second predefined region. Therefore, Holmes fails to teach the element for which it is relied upon, namely, an access controller that meters access to data within a first region and allows unmetered access to data within a second region (Office Action, page 3, lines 4-6)

The Office Action on page 3, line 9 states that Holmes fails to disclose a predefined first and second region and attempts to cure the deficiency by merely citing a references that teaches predefined disk regions. In particular, the Office Action cites Li column 6, lines 22-27, which discuss having hot and cold regions for improving response times in a logical structured array. Li explains that:

> "The segments in the hot region consist of physical tracks located close to the center of the disk platter which require less seek time. The segments in the cold region consist of physical cylinders farther away from the center of the disk platters."
> (Li, column 6, lines 25-28)

This section does not mention anything related to reordering disk commands or metering access requests to particular disk regions. In fact, it does not refer to anything related to processing disk commands. The cited section simply teaches that the area closer to the center of a disk platter requires less seek time, but does not explain why. Appellant believes that less seek time near the disk center is a result of the inherent physical properties of a circular disk and is not the result of any particular operation of a disk controller.

The rejection concludes that it would be obvious to incorporate the teachings of Li in the system taught by Holmes. Appellant submits that claim 1 is still not taught or suggested. First, the Office Action does not explain what is the result of the combined references but only states that improved performance occurs. Appellant submits that the result of the combined teachings is the disk of Holmes having a hot region close to the disk center and a cold region farthest from the disk center. Appellant further submits that the disk of Holmes already has the property of data being closer to the disk center needs less seek time because according to Li, this is a property of a circular disks.

Accordingly, having such hot or cold regions in Holmes fails to affect the operation of controller 140 and this would be clearly understood by one of ordinary skill in the art. Holmes teaches that the controller 140 reorders commands based on the current location of the disk head (Holmes, column 1, lines 51-60). The reordering has nothing to do with data being near the disk center (hot region) or near the disk perimeter (cold region). In fact, regions of the disk are irrelevant to the reordering decisions made by the Holmes controller 140. Therefore, combining the hot and cold regions of Li fails to modify or affect the operation of the controller 140 in any way. Accordingly, the controller 140 still would not meter access to data within a first predefined region or allow unmetered access to data within a second predefined region. The combination still fails to teach each and every element of claim 1. The combined references fail to establish a prima facie obviousness rejection and the rejection should be reversed.

As additional evidence, consider the following operational example using a disk with the combined teachings of Holmes' command reordering based on head location and Li's hot/cold regions. Suppose there are three disk commands like the three commands described in Holmes column 1, lines 54-62. The commands are: a first command requests data from an inner track (hot region), a second command requests data from an outer track (cold region), and a third command requests data from an inner track (hot region). Holmes teaches that the controller 140 determines the location of the head in view of the first command (e.g. at the inner tracks) and reorders other commands also accessing the inner tracks to be executed next (e.g. the third command) (Holmes, column 1, lines 58-62). The controller 140 is configured to reorder commands based on the location of the head.

In this example, the controller does not meter the second command because commands directed to a predefined region are not metered. Such a control feature is not taught by Holmes. For example, if the first command accessed the outer track, then no reordering would occur since the second command also accesses the outer track. The commands would be executed in the order: first, second and third. Thus, even though the third command accesses an inner track (the hot region), it is given no priority and is performed after the two outer track (cold region) commands. Therefore, the controller 140 operates based on the location of the head and the sequence of commands, which dictate the location of the head. No metering of access requests in any region occurs.

Compare the second example to the system of claim 1, where the first and second commands access the cold region and the third command accesses the hot region. Suppose the hot region is unmetered and the cold region is metered. The third command would be executed because it accesses an unmetered region and the first and second commands would be metered. This would occur even if the disk head is currently located in the cold region.

There is no feature in the combined teachings that meters access to data within a first predefined region within a storage device and allows unmetered access to a second predefined region as recited in claim 1. The rejection is not supported by the references and should be reversed.

Since claim 1 recites features not disclosed or suggested by the references, claim 1 patentably distinguishes over the references and is now in condition for allowance. Accordingly, dependent claims 2-12 also patentably distinguish over the references and are in condition for allowance.

As stated previously, independent claims 13 and 25 are grouped with claim 1. Thus, the rejections of claims 13-19 and 25-35 are also not supported by the references and the rejections should be reversed. Claims 13-19 and 25-35 should now be allowed.

Dependent Claim 17

Claim 17 depends from claim 13 and recites defining a plurality of regions within the storage device and assigning a metering threshold for selected regions of the plurality of regions. The Office Action on page 5, second paragraph, cites Holmes as teaching this feature based on the conclusion that "threshold is established by movement of the head." Appellant submits that no assignment of a threshold is performed by the movement of the head. Appellant respectfully submits that Appellant fails to see any relationship or relevance to the movement of the head in Holmes and assigning a metering threshold as claimed. Thus, claim 17 is not taught by the references and a prima facie obviousness rejection has not been established. Claim 17 should now be allowed.

Independent Claim 20

Claim 20 recites a method that includes allowing I/O requests having a first priority level to be processed, limiting I/O requests having a second priority level, where the priority level of an I/O request is determined based on a predefined location of data within the storage device associated with the I/O request. For example, predefined locations within the storage device have different priorities and as the claim recites, it is predefined. Thus, the priority of an I/O request that tries to access a higher priority location will be given higher priority than an I/O request that tries to access a lower priority location.

The Final Office Action on page 5, last paragraph, cites Holmes column 1, lines 51-62 as teaching the claimed feature of determining the priority level of an I/O request based on a location of data within the storage device associated with the I/O request. The Office Action admits that Holmes does not disclose predefined locations (Office Action, page 5, last line). At the top of page 6, the rejection merely cites to the hot and cold regions of Li (Li, column 6, lines 22-27), incorporates the regions into Holmes, and concludes that claim 20 is obvious.

Appellant respectfully submits that Holmes fails to teach determining the priority level of an I/O request based on a location of data within the storage device. As explained in detail above, Holmes teaches reordering disk commands based on the location of the head, not based any locations within the storage device (Holmes, column 1, line 53, "data in areas closer to the head are given greater priority"). Therefore, Holmes fails to teach the feature for which it is relied upon and fails to support the rejection.

Furthermore, combining the hot and cold regions of Li fails to cure the deficiencies of Holmes. As previously explained, the disk of Holmes already includes disk tracks closer to the disk center and disk tracks closer to the perimeter, which Li states are hot and cold regions, respectively. Having these hot and cold regions does not affect the operation of the Holmes controller 140 since priority is given to commands accessing data "closer to the head." Thus adding predefined regions of Li into Holmes fails to teach or suggest each and every feature of claim 20. A prima facie obviousness rejection has not been established and the rejection should be reversed.

Claim 20 should now be allowed. Accordingly, dependent claims 21, 23, and 24 should also be allowed.

Independent Claim 35

The rejection of claim 35 is based on the primary reference of Holmes and appears on page 6, last paragraph of the Office Action. Claim 35 recites a database system configured to process access requests to a storage device. Holmes fails to teach or suggest a database system configured as claimed and no reference to a database system was cited by the Office Action. Holmes merely teaches an exchange of data between a common computer and its hard disk drive (Holmes, column 1, lines 15-17). This fails to teach or suggest a database system and Holmes fails to support the rejection for at least this reason. The rejection should be reversed.

Additionally, Holmes fails to teach or suggest the claimed allocation logic and threshold logic. The Office Action states that it is inherent that logical blocks are allocated in disk drives. It is true that logical blocks are allocated in disk drives however the claim recites an operational relationship between the defined regions of the allocation logic and the threshold logic. Claim 35 recites that the threshold logic assigns a metering threshold to one or more selected regions that have been defined and this is not taught or suggested by Holmes.

The Office Action asserts that Holmes teaches the claimed threshold logic based merely on the movement of the disk head (e.g. "threshold established by movement of the head"). This assertion is created by the Examiner since Holmes fails to mentions anything related to assigning thresholds. Movement of the head fails to assign any value let alone assign a metering threshold. Appellant respectfully submits that Appellant fails to see any relationship or relevance to the movement of the head in Holmes and a logic that assigns a metering threshold as claimed. Thus, Holmes fails to teach or suggest the features for which it is relied upon and fails to support a proper prima facie obviousness rejection for this additional reason. Claim 35 should now be allowed.

Claim 35 further recites an access controller including logic configured to meter access requests to a selected region of the plurality of regions once a metering threshold for the selected region is met. Since Holmes does not assign a metering threshold, a metering threshold does not exist in Holmes. Thus, Holmes cannot and does not teach a logic that operates based on a non-existent feature. The Office Action attempts to create such a teaching out of Holmes based on the movement of the disk head but this reasoning has no relationship to the claimed features and has no merit. Accordingly, Holmes fails to teach or suggest every feature for which it is relied upon and fails to support a prima facie obviousness rejection. The rejection is improper and should be reversed.

Lastly, the combination of Li and its hot and cold regions has no bearing on the deficiencies of Holmes. As previously described, having hot and cold regions in Holmes does not impact or change the operation of the controller 140 since the controller 140 gives priority based on the location of the head, not the hot and cold regions within the storage device. Thus, the combined references still fail to establish a prima facie obviousness rejection. The rejection is improper and should be reversed. Claim 35 should now be allowed, as well as dependent claims 36-37.

Remaining Rejections Not Specifically Addressed

The rejections not addressed relate to dependent claims 10, 14, 19, 21, 28; and 3-4, 15-16, 27, 30 and 32. The independent claims from which these claims depend have been shown to patentably distinguish over the references of record and that their corresponding rejections are not supported. It then follows that the rejections of the dependent claims are also not supported by the references and the rejections cannot stand. Thus, these claims are not obvious over the references and are now in condition for allowance.

Conclusion

For the reasons set forth above, a prima facie obviousness rejection has not been established for any claim. All rejections have been shown to be improper. Appellant respectfully believes that all pending claims **1-21 and 23-37** patentably and unobviously distinguish over the references of record and that the rejections should be withdrawn. Appellant respectfully requests that the Board of Appeals overturn the Examiner's rejections and allow all pending claims. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

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8. Claims Appendix

1. A system for a storage device, comprising:

an access controller configured to control access requests to a storage device by metering access to data within a first predefined region within the storage device and by allowing unmetered access to data within a second predefined region within the storage device.

2. The system of claim 1, where the system is embedded in one of, a database system, an operating system, and an application configured to process access requests to the storage device.

3. The system of claim 1, where the system further includes allocation logic configured to determine a priority for data to be written to the storage device and causing the data to be stored within the first region or the second region based on the priority.

4. The system of claim 3 where the priority of the data includes a plurality of priority levels.

5. The system of claim 1 where the storage device includes one or more disk drives.

6. The system of claim 1 where the storage device includes a disk and where the second region is defined closer to a perimeter of the disk than the first region.

7. The system of claim 6 where the first region and the second are defined by one or more logical block addresses.

8. The system of claim 1, where the system is embedded in a file system configured to process data input and output requests to the storage device.

9. The system of claim 1 where the access requests include at least one of data input and data output requests.

10. The system of claim 1, where the access controller is configured to meter access based on a threshold of access requests directed to the data within the first region.

11. The system of claim 1 further including one or more tables configured to define at least the data in the first region to be metered.

12. The system of claim 11 where the data in the one or more tables is configured to define one or more of, a file, an application, and a data location.

13. A method, comprising:

receiving access requests to a storage device; and

increasing response time for access requests to a first predefined region within the storage device by metering access requests to a second predefined region within the storage device.

14. The method of claim 13 where the metering includes limiting a number of access requests to the second region based on a threshold number of the access requests.

15. The method of claim 13 further including storing data to be metered within the storage device based on a priority level of the data.

16. The method of claim 13 further including determining, for a selected data, whether the selected data will be stored within the first region or the second region.

17. The method of claim 13 further including:

defining a plurality of regions within the storage device; and

assigning a metering threshold for selected regions of the plurality of regions.

18. The method of claim 17 where the plurality of regions are defined by setting one or more addresses within the storage device.

19. The method of claim 13 further including:
monitoring a number of access requests to the second region; and
initiating the metering when the number of access requests reaches a threshold.

20. A method comprising:
receiving I/O requests directed to a storage device;
determining a priority level of each of the I/O requests;
allowing I/O requests having a first priority level to be processed; and
limiting I/O requests having a second priority level,
where the priority level of an I/O request is determined based on a predefined location of data within the storage device associated with the I/O request.

21. The method as set forth in claim 20 where the limiting includes restricting the I/O requests having the second priority level based on a threshold number of I/O requests having the second priority level.

22. (Cancelled).

23. The method as set forth in claim 20 where data located adjacent a perimeter of the storage device receives the first priority level and where data located adjacent a hub of the storage device receives the second priority level.

24. The method as set forth in claim 20 where the location of the data is determined based on one or more predetermined addresses within the storage device.

25. A computer-readable medium storing processor executable instructions operable to perform a method, the method comprising:

processing access requests to a storage device; and

metering access requests to a first predefined region within the storage device to maintain response time for access requests to a second predefined region within the storage device.

26. The computer-readable medium as set forth in claim 25 where the storage device includes a disk drive.

27. The computer-readable medium as set forth in claim 25 further including processor executable instructions operable to cause a processor to store data to the storage device based on a priority of the data, the data being stored in one of the first region and the second region.

28. The computer-readable medium as set forth in claim 25 further including processor executable instructions operable to cause a processor to set a threshold value of access requests, where access requests to the first region are caused to be metered after the threshold value of access requests are processed.

29. The computer-readable medium as set forth in claim 25 where the metering includes limiting a number of the access requests to the first region from being processed.

30. The computer-readable medium as set forth in claim 25 where the processing includes determining to which region each of the access requests is directed.

31. The computer-readable medium as set forth in claim 25 further including processor executable instructions operable to cause a processor to define at least the first region and the second region within the storage device.

32. The computer-readable medium as set forth in claim 25 including means for allocating data to a selected region within the storage device.

33. The computer-readable medium as set forth in claim 25 where the computer-readable medium is integrated with at least one of: a data base system, a file system, an operating system, and the storage device.

34. The computer-readable medium as set forth in claim 25 further including access controller means for metering access requests to the first region.

35. A database system configured to process access requests to a storage device, the system comprising:

allocation logic configured to define a plurality of regions within the storage device based on information received from a user;

threshold logic configured to assign a metering threshold to one or more selected regions of the plurality of regions; and

an access controller configured to process access requests to the storage device, the access controller including logic configured to meter access requests to a selected region of the plurality of regions once a metering threshold for the selected region is met.

36. The database system of claim 35 where the allocation logic is further configured to cause selected data to be placed within a selected region of the plurality of regions based on a frequency of access to the selected data.

37. The database system of claim 35 where the access controller includes means for metering access requests.

9. Evidence Appendix

None. There is no extrinsic evidence.

10. Related Proceedings Appendix

None. There are no related proceedings.